



## Photonics and Precision Technology

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### Summary

Optical technologies find applications in almost every branch of industry and trade. According to VDI, The Association of German Engineers, optical technologies will replace around 30 percent of electronics in the next few years. A recent study by the Swiss firm, Optec Consulting, predicts that the global market for laser materials processing systems will have an annual growth rate of 13 percent for the next five years. Germany is world-renowned for its leadership in photonics and precision technology and offers tremendous opportunities for U.S. manufacturers and distributors of optical technologies as well as for investors. With total sales approaching close to EUR 37.5 billion in 2004, the industry for optical technologies is an important cornerstone of the German economy. Around 16% of jobs in the manufacturing industry are directly or indirectly dependent on optical technologies, which corresponds to almost one million employees, with 110,000 directly working in the optical technologies sector. While domestic sales in Germany have remained stable, exports from Germany have increased by more than 14 percent to a new high of EUR 21 billion, Eastern Europe and the new European Union members being prime export markets. With well over 50 percent of total sales in Germany going towards exports, international companies increasingly regard Germany as a hub for exports to other European countries and the Middle East.

In the photonics sector, trade with the United States and Canada is on the rise: Imports from the United States account for 20 percent of the import market. The EU is the largest source of imports with a 36 percent share in 2004, followed by Asian countries with 28 percent. The key driving force behind this dynamic industry continues to be high R&D spending (9 percent of annual sales) coupled with Germany's well-established network of private industry initiatives, public and private research labs, and universities. Major end-users include companies active in information and communication technologies, micro and macro finishing, computer chip production, the automobile industry, defense industry, analytical and laboratory instrumentation, and the medical technology with new diagnostic and therapy methods. Technical innovation in high-tech sectors, particularly those related to nano-technology, contributes to future market growth.

U.S. exports of optical instruments, photographic, cinematographic, measuring, checking, precision, medical and surgical instruments and apparatus (HTS 90) to Germany increased by 10% compared with 2003, reaching USD3.4 billion. In the first six months of 2005, the United States exported optical, precision, and medical instruments worth USD1.8 billion to Germany, which is about 12% of all U.S. exported goods and services to Germany.

**Table I: U.S. Exports to Germany (FAS)**

By Harmonized Tariff Schedule (HTS) Chapters, ranked by 2004 exports

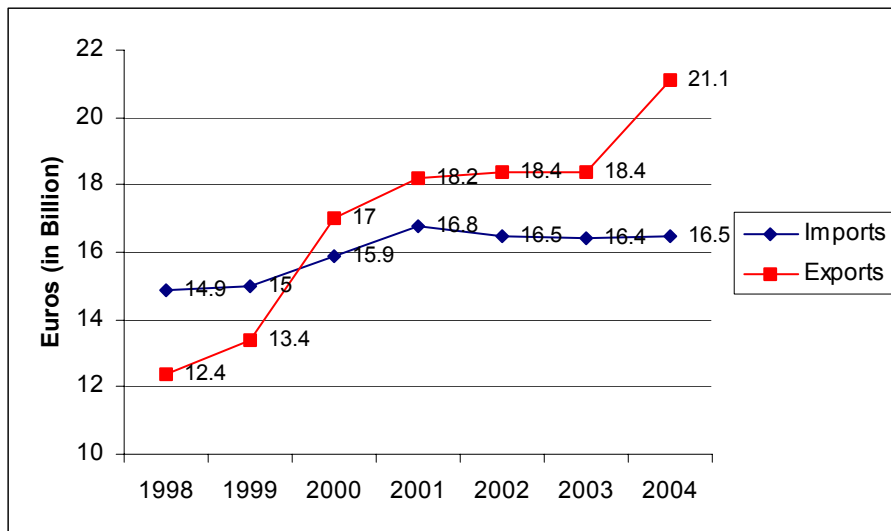
2004 rank	HTS Category	2003	2004		2004	2005
		USD million		Percent of total	Jan.-Jun	
					USD million	
	All categories	26,806.1	27,222.9	100.00	13,804.6	13,983.9
1	<a href="#">84.</a> --nuclear reactors, boilers, machinery and mechanical appliances; parts thereof	5,611.6	5,692.9	20.912	2,739.3	3,285.4
2	<a href="#">90.</a> --optical, photographic, cinematographic, measuring, checking, precision, medical or surgical instruments and apparatus; parts and accessories thereof	3,114.2	3,432.3	12.608	1,720.0	1,818.4
3	<a href="#">87.</a> --vehicles, other than railway or tramway rolling stock, and parts and accessories thereof	4,703.3	3,381.3	12.421	2,031.6	974.4
4	<a href="#">85.</a> --electrical machinery and equipment and parts thereof; sound recorders and reproducers, television recorders and reproducers, parts and accessories	3,228.3	3,085.6	11.335	1,561.5	1,611.1
5	<a href="#">29.</a> --organic chemicals	923.3	1,782.2	6.547	976.5	858.5
6	<a href="#">88.</a> --aircraft, spacecraft, and parts thereof	1,337.7	1,203.0	4.419	577.7	787.0
7	<a href="#">38.</a> --miscellaneous chemical products	765.9	981.0	3.604	503.3	511.4
8	<a href="#">98.</a> --special classification provisions, nesoi	1,020.8	965.3	3.546	485.9	473.0
9	<a href="#">39.</a> --plastics and articles thereof	592.1	683.0	2.509	331.1	383.7
10	<a href="#">30.</a> --pharmaceutical products	662.6	592.4	2.176	294.0	358.5

## Competitive Analysis, Market Highlights, and Best Prospects

### Imports

The United States continues to be the number one foreign supplier with a 20 percent share of the import market, followed by Japan (14%), France (8.8%), China and Switzerland (both at about 7.8%), the Netherlands (5.6%), and Hungary (4.4%). While imports from Western European countries, with the exception of France (+18.7%) are on the decline, imports from Eastern European countries have jumped by about 18% over the last two years. Imports from Japan are down by 9.2%, while sales from China have shown a slight increase of 3%. Recent studies predict an annual growth rate of 7.9% worldwide for the photonics industry until 2009.

**Table II: Germany: Imports – Exports of Optical Technologies**



**Table III: Import of U.S. Photonics and Precision Technology**

Industry Sector	Market Share in % 2004	% Change 2003 – 04
II. Photonics and Precision Technology	19.8	4.1
1. Analytical, Bio, and Laboratory Instrumentation	41.2	13.3
2. Imaging and Photo Technology	2.5	-9.8
3. Industrial Measurement and Sensor Technologies	19.3	-3.8
4. Laser and Optical Components	24.8	2.5

U.S. companies will find best prospects in the analytical, bio, and laboratory instrumentation markets, where sales have increased by 13.3 percent in 2004. Innovation is the key: In 2004, the sector for medical technologies and instrumentation,

an end-user of Photonics and precision technology, generated 25 percent of turnover through sales of products which were less than two years old.

## **End-User Analysis and Market Access**

End-users of optical technologies can be found in many different industry sectors, including

- Space and aircraft construction
- Automobile industry
- Machine industry
- Microelectronics
- Mechanical engineering
- Medical technology
- Lighting
- Telecommunications
- Defense industry.

**The following is a shortlist of large companies, which could be potential end-users of optical technologies made in the United States:**

- [www.dasa.com](http://www.dasa.com)  
EADS (DASA) is the largest aerospace company in Europe and the second largest worldwide. It is active in the fields of civil and military aircraft, space, defense systems and services. [www.dasa.com](http://www.dasa.com)
- [www.philips.com](http://www.philips.com)  
This global electronics company is active in lighting, consumer electronics, domestic appliances, components, semiconductors, and medical systems
- [www.siemens.com](http://www.siemens.com)  
Siemens AG is a global solutions company with more than 400 manufacturing sites located in 190 countries. With a focus on electrical engineering and electronics, the company conducts business in the following segments: information and communications, automation and control, power, transportation, medical, lighting, financing and real estate.
- [www.bosch.com](http://www.bosch.com)  
Bosch is a major supplier of automotive equipment and technology including car industrial technology, power tools, security solutions, thermo-technology and household appliances.  
  
Automobile sector:
  - [www.bmw.com](http://www.bmw.com)
  - [www.daimlerchrysler.com](http://www.daimlerchrysler.com)
  - [www.vw.com](http://www.vw.com)
  - [www.porsche.com](http://www.porsche.com)

Partnerships with small and medium-sized companies offer great opportunities for market-entry. In Germany, small and medium sized companies with less than 200 employees make up 90 percent of all companies in the optical technologies sector. They generate 40 percent of total turnover, employing 46 percent of the total workforce in the sector. Most promising projects can be found in the areas of opto-electronics, LEDs, optocouplers, photo detectors, and diode lasers. New developments in Laser-

microscope technologies at the University of Göttingen, for example, show great potential for applications in the research of pharmaceuticals for neurological diseases.

**Information on market access, tariffs, and taxes (import-turnover or value-added tax) may be found on the following website:**

- [www.mkaccdb.eu.int](http://www.mkaccdb.eu.int)

This "Market Access" database is a free service maintained by the EU and provides information about market access conditions in EU and non-EU countries.

Equipment imported for R&D purposes is generally duty-free as long as it is used for such purpose only. More information can be found on the following website:

- [www.zoll.de/sitemap.html](http://www.zoll.de/sitemap.html)

Information on European standards can be obtained from the "Country Commercial Guide for Germany" at

- <http://www.world-digest.com/Guides/gm/>

Additional information on standards can be found under the following website: "Standards & Certification -- Helping U.S. Exporters to Germany":

- <http://buyusainfo.net/info.cfm?id='125148'&keyx='AFB3A4A1975A53E33E08262DF29A287D'&navcol=>

While Germany's regulations and bureaucratic procedures can be a difficult hurdle for U.S. companies, compliance is essential for market entry. Not all standards are legally required, and additional quality marks can greatly enhance a product's marketability.

**The following organizations provide information on EU and/or German standards:**

- **DIN**  
The German organization that compiles the standards for a "GS" mark is the "Deutscher Industrie Normenausschuss (DIN)" (German Standards Institute). The DIN can provide information, for a fee, on German and European standards: <http://www.din.de>. DIN publications are also available in the United States from:  
  
Global Engineering Documents  
Attn: Technical Research Department  
15 Inverness Way East  
Englewood, CO 80112  
Phone: (800) 624-3974, ext. 1930; or (303) 792-2181, ext. 1930  
Fax: (303) 705-4249  
Email: [global.research@ihs.com](mailto:global.research@ihs.com)
- **VDE**  
The Association of German Electrical Engineers (VDE: Verband Deutsche Elektrotechniker e.V.) is responsible for establishing technical standards for electrical equipment and electronics. VDE conducts wide-ranging testing and establishes technical standards for a variety of public and private clients, including the DIN. Information on this association can be obtained on the English website: <http://www.vde.de/vde/html/e/home.htm>  
U.S. firms should note that the VDE maintains close and formal working relationships with several other independent testing houses. Among them,

and of special interest to U.S. firms, are "TUEV Product Services" (the German parent of TUV America, Inc.) and "Underwriters Laboratories, Inc.," which have a close working relationship with the TUEV.

- **TUEV**  
The "Technischer Ueberwachungsvereine" (technical inspection organizations) or "TUEV provides detailed information on standards and is one of the inspecting agencies in Germany. More information can be obtained from the Country Commercial Guide (see above), available through the various U.S. Department of Commerce Export Assistance Centers in the United States, or by visiting the following websites:  
[www.tuev-sued.de](http://www.tuev-sued.de) - TUEV Sueddeutschland (TUEV for southern Germany)  
[www.tuev-nord.com](http://www.tuev-nord.com) - TUEV Norddeutschland (TUEV for north Germany)
- **NIST**  
Before deciding to export, U.S. companies can also contact The National Center for Standards and Certification Information of the National Institute of Standards and Technology (NIST) in Gaithersburg, Maryland. NIST maintains standards information for all ISO (International Organization for Standardization) countries, including Germany, and can provide the appropriate identification number of the German standard or EU directive. Please visit <http://ts.nist.gov> for more information.
- **ANSI**  
Another source of information is the American National Standards Institute (ANSI) in New York. ANSI is the official U.S. repository for all ISO member country standards. For a fee, U.S. firms may obtain a "standards search". Information on ANSI can be obtained from the website: [www.ansi.org](http://www.ansi.org)
- **Underwriters Laboratories**  
Underwriters Laboratories, Inc. (UL) can also assist U.S. manufacturers and exporters in understanding international standards, certification requirements, and compliance procedures. The "International Compliance Services Program" of UL can provide technical information about standards in many foreign countries. UL has agreements with a number of foreign agencies, including the VDE (Verband Deutscher Elektrotechniker) and TUEV Product Services, to conduct product testing and factory evaluations. Information on Underwriters Laboratories can be obtained from the website: [www.ul.com](http://www.ul.com).

**For questions regarding market entry, distribution channels, business culture and practices**, U.S. companies should contact their local U.S. Department of Commerce Export Assistance Centers (EACs). Among many services, these EACs provide customized market analyses, flexible market research, as well as help in contacting international partners, distributors etc. For a complete list of EACs, please visit [www.export.gov/comm\\_svc/eac.html](http://www.export.gov/comm_svc/eac.html)

U.S. companies involved in optical technologies have various options to enter the German market. They can either choose to contact end-users directly, work with established distributors, contact universities and research labs for joint projects, or enter into partnerships with local companies. Participating in a trade fair, either as an exhibitor or as a trade visitor, may be the first choice for a firm new to export. For companies on a small budget, many trade fairs offer attractive packages, which makes participation more affordable. For more information, please contact the trade fair organizer directly or one of your local EACs. Certified "U.S. Pavilions" offer one-on-one

business matching, business counseling from trade specialists, and special exhibit services designed to help U.S. exporters maximize returns from trade shows and make more international sales. The U.S. Department of Commerce offers several programs, such as "Showcase Europe," which are designed to help U.S. companies contact European companies, by scheduling pre-arranged meetings on the show-floor with a select group of European buyers or distributors. For more information on these programs, please visit the U.S. Department of Commerce website under <http://www.export.gov/partners.html>

**The following list gives a short overview of the largest trade fairs on optical technologies and related industries held in Germany:**

[http://www.spectaris.de/branche/branche\\_main.htm](http://www.spectaris.de/branche/branche_main.htm)

- **Optatec**  
<http://www.schall-messen.de/s/optatec/>  
Optatec, the "International Trade Fair for Future Optical Technologies, Components, Systems and Manufacturing," takes place once every two years at the Frankfurt Exhibition Center. It has already established itself as an international industry forum, and presents the entire spectrum of optics, opto-electronics, laser technology and fiber optics, as well as optical transmission and information technologies.
- **Achema**  
<http://www.chema.de/ACHEMA-lang-en.html>  
Held every two years in Frankfurt, Achema is a world forum for process industries in the field of Chemical Engineering, Environmental Protection and Biotechnology.
- **Analytika**  
<http://www.analytica-world.com>  
Held every 2 years in Munich, this trade fair covers instrumental analysis, laboratory technology, and biotechnologies.
- **Fibercom**  
<http://www.feinoptik.de/english/index.htm>  
FiberCom in Munich is an international trade show and congress for optical information and communications technology.
- **Intergeo**  
<http://www.intergeo.de/englisch/fachmesse/allgemeininfos.htm>  
Held every year in Stuttgart, the INTERGEO is the largest conference and trade fair for geodesy, geo-information and land management worldwide and provides a comprehensive overview over all innovations, trends and standards of the industry.
- **Interkama**  
[http://www.hannovermesse.de/interkama\\_e?x=1](http://www.hannovermesse.de/interkama_e?x=1)  
Held every year in Hanover, the Interkama is the world's largest fair exploring all aspects of automation technology for the manufacturing industry, the process industry and hybrid industries.

- **Laser 2005. World of Photonics**  
<http://www.global-electronics.net/id/23988>  
 Held every 2 years, World of Photonics 2005 had 950 exhibitors, with more than half of these coming from outside Germany. It is considered the world's leading trade show for the industry. In 2005, attendance by U.S., Chinese, and Japanese companies increased by more than 50 percent. Compared to the previous show, the overall number of attendees increased by ten percent to 23,500. The second largest exhibitor after Germany (455 exhibitors) was the United States (137), followed by Great Britain (77) and France (41). Representatives came from such diverse industries as automotive, aviation and aerospace technology, optics, electrical engineering/electronics, precision engineering, general mechanical engineering, and even art and archeology.
- **Medica**  
[www.medica.de](http://www.medica.de)  
 World Forum for Medicine  
 parallel to:  
**ComPaMED**  
 (24th - 26th November 2004)  
 13th International Trade Fair  
 Components, Parts and Raw Materials for Medical Manufacturing sector.

#### **Public and private research labs:**

Small, start-up companies with high-tech, innovative products may want to contact one of the many public and private research labs listed below. Some of these may also offer investment opportunities for U.S. companies by participating in joint research efforts.

- **Fraunhofer Institute for Applied Optics and Precision Engineering IOF**  
[www.fhg.de](http://www.fhg.de)  
 Albert-Einstein-Str. 7  
 07745 Jena  
 Tel.: +49 (0)3641-807-0  
 Fax: +49 (0)3641-807-600  
 E-mail: [karthe@iof.fhg.de](mailto:karthe@iof.fhg.de)
- **Fraunhofer-Institut for Laser Technology ILT**  
 For more than 20 years, Fraunhofer-Institut for Laser Technology has provided innovative solutions to manufacturing and production problems. The development of new technical components, competent consultancy and training, highly specialized personnel, the latest technology as well as an international reputation provide opportunities for long-term partnerships. Fraunhofer-Institut for Laser Technology ILT  
[www.ilt.fraunhofer.de](http://www.ilt.fraunhofer.de)  
 Marketing und Kommunikation  
 Steinbachstr. 15  
 52074 Aachen  
 Tel.: +49 (0)241/8906-0  
 Fax: +49 (0)241/8906-121  
 E-mail: [info@ilt.fraunhofer.de](mailto:info@ilt.fraunhofer.de)
- **Fraunhofer Institute ISIT**  
 The Fraunhofer-Institut für Siliziumtechnologie (ISIT), Itzehoe, works on design, development and production of microelectronic components as well as on microsensors, microactuators and other components for microsystems technology. All devices can be delivered as prototypes or according to customer specifications.

The institute works with Vishay Semiconductor Itzehoe GmbH, a professional semiconductor production line. This line is used for the production of microelectronic devices (PowerMOS) and Microsystems. ISIT uses this line for R&D projects for new components and technological processes.

<http://www.isit.fhg.de>

Fraunhofer Institute ISIT  
Prof. Dr. Anton Heuberger  
Fraunhoferstraße 1  
D-25524 Itzehoe  
Tel.: +49 (0) 48 21 / 17 - 0 or 4211  
Fax: +49 (0) 48 21 / 17 - 42 50  
E-mail: [heuberger@isit.fhg.de](mailto:heuberger@isit.fhg.de)  
E-mail: [info@isit.fhg.de](mailto:info@isit.fhg.de)

**In the USA, please contact:**

○ **Fraunhofer Center for Laser Technology (CLT)**

- Consulting and laser process development
- Prototyping and system integration
- Training and education

[www.clt.fraunhofer.com](http://www.clt.fraunhofer.com)

Dr. Stefan Heinemann  
Director  
Center for Laser Technology  
46025 Port Street  
Plymouth, MI 48170  
Tel.: 1-734-354-6300  
Fax: 1-734-354-3335  
E-mail: [sheinemann@fraunhofer.org](mailto:sheinemann@fraunhofer.org)

○ **Fraunhofer Center for Coatings and Laser Applications**

- Thin film coatings and wear protection
- Laser joining and cutting
- Laser surface treatment and ablation processes
- Installation of on-site production and pilot systems

[www.ccl-coatings.com](http://www.ccl-coatings.com)

Coating Technology Division:

B100 Engineering Research Complex  
Michigan State University  
East Lansing, MI 48824  
Tel.: 1-517-432-8711  
Fax: 1-517-432-8714  
E-Mail: [cclinfo@fraunhofer.org](mailto:cclinfo@fraunhofer.org)

Laser Applications Division:

46025 Port St.  
Plymouth, Michigan 47180-6080  
Tel.: 1-734-354- 6300 ext. 231  
Fax: 1-734- 354-3343  
E-Mail: [laserinfo@fraunhofer.org](mailto:laserinfo@fraunhofer.org)

- **Max Planck Institute for Quantum Optics (MPQ)**

The MPQ focuses on basic experimental and theoretical research in the field of light-matter interaction, and the development of new laser techniques and their application in atomic and plasma physics.

MPQ concentrates on precision spectroscopy applied to the hydrogen atom (antihydrogen atom) and to single trapped ions; the study of quantum processes in the interaction of radiation with single atoms in cavities; experiments with laser-cooled, ultra-cold atoms for the study of atom optics and Bose-Einstein condensation, as well as the study of quantum phenomena in molecular physics and chemistry. The Institute currently has 189 members in the divisions of [Laser Physics](#), [Laser Chemistry](#) and [Laser Spectroscopy](#). A new division, [Quantum Dynamics](#), experiments with ultra-cold atoms and their quantum behavior. In addition, there are research groups for [laser plasmas](#) and [theoretical quantum optics](#). MPQ cooperates with [Texas A&M University](#) the [Hebrew University](#), Jerusalem, Israel

Max-Planck-Institut für Quantenoptik  
Hans-Kopfermann-Str. 1  
D-85748 Garching, Germany  
Tel.: +49 (0) 89 3 29 05 - 0  
Fax: +49 (0) 89 3 29 05 - 2 00  
E-mail: [mpq-info@mpq.mpg.de](mailto:mpq-info@mpq.mpg.de)

- **Verein Deutscher Ingenieure (VDI)**

The Association of German Engineers (VDI) is a financially independent and politically unaffiliated, non-profit organization of 126,000 engineers and natural scientists. More than 12,000 of these members work for the VDI in an honorary capacity.

Established in 1856, the VDI is today the largest engineering association in Western Europe. In Germany, it is recognized as the representative of engineers both within the profession and in the public arena. It is also the leading institution for training and technology transfer among experts.

Verein Deutscher Ingenieure e.V.  
Graf-Recke-Str. 84  
40239 Düsseldorf  
Tel.: + 49 (0) 211 62 14-0  
Fax: + 49 (0) 211 62 14-1 75  
E-Mail: [Kundencenter@vid.de](mailto:Kundencenter@vid.de)

- **VDI Technologiezentrum GmbH**

[www.kompetenznetze.de](http://www.kompetenznetze.de)

Department for Basic Issues of Research,  
Technology and Innovation  
Graf-Recke-Strasse 84  
D-40239 Düsseldorf  
Tel.: +49 (0) 211 62 14-639  
Fax: +49 (0) 211 62 14-168  
E-mail: [info@kompetenznetze.de](mailto:info@kompetenznetze.de)  
on behalf of the German Federal Ministry  
of Education and Research

- **Arbeitsgemeinschaft industrieller Forschungsvereinigungen "Otto von Guericke" e.V. (AiF)**

[www.aif.de](http://www.aif.de)

AiF is the German Federation of Industrial Cooperative Research Associations "Otto von Guericke" (Arbeitsgemeinschaft industrieller Forschungsvereinigungen "Otto von Guericke" e.V.). As a registered non-profit association, it focuses on the promotion of applied Research and Development (R&D) for the benefit of small and medium-sized enterprises (SMEs). Organized by industry, AiF supports the efficient usage and advancement of R&D-programs in order to increase the competitive strength of SMEs. It is an industry-based innovations network with over 100 industrial research associations, approximately 50,000 SME, and about 700 associated research institutions. Since its foundation in 1954, AiF has been a competent partner to the federal government, both the Federal Ministries of Economics and Labor (BMWA) and of Education and Research (BMBF) - functioning as a bridge between industry and science within the framework of various R&D-programs. AiF acts as an agency for the promotion of R&D for small and medium-sized enterprises in two ways: on the one hand, it lays the foundations for industrial cooperative research in the pre-competitive stage for the benefit of entire industrial sectors; and on the other hand, AiF acts as a program managing executive for governmental R&D-support-measures for the benefit of individual companies and universities of applied sciences. Overall, AiF has an annual budget of nearly EUR 250 million of public funds.

Bayenthalgürtel 23  
50968 Köln  
Tel.: +49 (0)221 37680-0  
Fax: +49 (0)221 37680-27  
E-mail: [info@aif.de](mailto:info@aif.de)

#### **Associations:**

The following associations provide industry-related information, such as reports on the German and European optical technologies market or the latest product innovations.

- **Spectaris**

[www.spectaris.de](http://www.spectaris.de)

Spectaris is the German Industrial Association for Optical, Medical and Mechatronical Technologies Inc. (SPECTARIS for short - former name Association of the German Precision Mechanics and Optical Industries, F+O).

SPECTARIS Association  
Saarbrücker Straße 38  
10405 Berlin, Germany  
Tel.: +49 (0)30 41 40 21-0  
Fax: +49 (0)30 41 40 21-33

European Office Cologne  
Kirchweg 2  
D-50858 Köln  
E-mail: [info@spectaris.de](mailto:info@spectaris.de)

Databank of Optical Components:  
<http://www.optischekomponenten.de/db/index.php?language=english>

- **OptecNet**

[www.optecnet.de](http://www.optecnet.de)

OptecNet Deutschland e.V. is the association of the German regional Competence Networks for Optical Technologies. The [German competence networks for Optical Technologies](#) unite companies, research and education institutions, technology transfer agencies, business development companies, investors and public-law corporations. Their common aim is to support the development and application of Optical Technologies "made in Germany." Ten regional networks belong to this association, with a membership base of 400 companies, mostly SMEs.

OptecNet Deutschland e.V.  
Marketing & Communications  
Dipl.-Fachuebers. Silke Kramprich  
Garbsener Landstraße 10  
D-30419 Hanover  
Tel.: +49 (0) 511-277-1292  
Fax: +49 (0) 511-277-1299  
E-mail: [kramprich@optecnet.de](mailto:kramprich@optecnet.de)

- **European Optical Society (EOS)**

[www.europeanopticalsociety.de](http://www.europeanopticalsociety.de)

With its long-term goal to achieve 'Coherence for Europe,' EOS contributes to the scientific progress in optics and related sciences and advances optical applications on the European and international level. EOS provides a forum for all individual members, companies, organizations, educational institutions and learned and professional societies, who recognize the opportunities and challenges of a common European base in the development of optical technologies.

Garbsener Landstrasse 10  
30419 Hanover  
Germany  
Tel.: +49 (0) 511-277-1295  
Fax: +49 (0) 511-277-1299  
E-mail: [eos@optecnet.de](mailto:eos@optecnet.de)

Contacting a distributor directly may be another option for U.S. companies interested in exporting to Germany. Products should be certified and meet European quality standards before a company decides to contact a distributor. Often products need to be adjusted to meet European technical specifications. As U.S. companies will face intense competition in this market, highly innovative products coupled with superior after-sales service are crucial selling points when dealing with European distributors. Many distributors are reluctant to add a new product to their portfolio, if delivery and after-sales service are not ensured.

As many German distributors also have outlets in other European countries, U.S. companies may be able to reach potential customers in several countries. As the largest market in Europe and with its close proximity to Eastern Europe, many European distributors are also headquartered in Germany.

**For More Information:**

For additional information on the German market for optical technologies, and on the Commercial Service's programs, please contact

U.S. Commercial Service  
American Consulate General  
Ms. Anja Norman  
Siesmayerstr. 21  
60323 Frankfurt  
Germany  
Tel: +49 (0) 69 956 2040  
Fax: +49 (0) 69 561 114  
Email: [Anja.Norman@mail.doc.gov](mailto:Anja.Norman@mail.doc.gov)

The U.S. Commercial Service Germany can be contacted via e-mail at: [frankfurt.office.box@mail.doc.gov](mailto:frankfurt.office.box@mail.doc.gov), website: <http://www.buyusa.gov/germany/en/>.

You can locate your nearest U.S. Export Assistance Center, as well as Commercial Service offices overseas by visiting [www.buyusa.gov](http://www.buyusa.gov) or [www.export.gov](http://www.export.gov).

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